

It has been usually stated that the only known species of the genus *EMYDA* was generally distributed over India; we have in the British Museum specimens only from the Valley of the Ganges. The young specimens all agree in the head and shell being variegated.

We have lately received a specimen of this genus from Ceylon, collected by Mr. Thwaites, which differs in both the above particulars; and in the Museum of the Society there is the shell of an adult animal, sent home from Ceylon by Dr. Kelaart, which shows that it is a most distinct species. They may be thus characterized:—

1. *EMYDA PUNCTATA*.

Back and upper part of the head pale spotted; the odd anterior callosity small, roundish triangular; the hinder callosity of adult ovate, inner edge semicircular; of young triangular, far apart.

Hab. India, Ganges.

2. *EMYDA CEYLONENSIS*.

Back and upper part of the head (in spirits) dull pale olive; lips, chin and lower part of the body whitish. The odd anterior sternal tubercle large, oblong, transverse; the hinder pair of callosities large, close, in adult nearly united, with straight parallel inner edges.

Emyda punctata, Kelaart, Prod. Faun. Ceylon. 179.

Hab. Ceylon.

Dr. Kelaart, in his work on the Ceylon animals, was not aware of the distinctness of this animal from the continental species; he observes that the head is black-lined when alive.

The new species described in this paper are figured in the Illustrated Catalogue of Tortoises in the Collection of the British Museum.

MISCELLANEOUS.

On the Vitality of the Anguillulæ of Mildewed Wheat.

By C. DAVAINÉ.

THE *Anguillulæ* of wheat in the larva state are endowed with the power of remaining dry and apparently dead for several years, and recovering their powers of movement when moistened. This is not the case with these animals after they have acquired sexual organs.

In the larva state also they exhibit a remarkable resistance to the action of violent poisons, provided these are not of a nature to act upon their tissues. The author has found by experiment, that opium, the salts of morphine, belladonna, atropine, strychnine, and its compounds, &c., have no action upon these animals. In a concentrated solution or paste of these substances, they continued to live and move for a fortnight. Nicotine, on the contrary, soon destroys their movements, but not their vitality, for after remaining several days in contact with this substance, they become as lively as ever when freed from it by washing.

Organic matters, and especially animal matters in a state of decom-

position, have the same action as nicotine upon the *Anguillulæ*. A little piece of meat, cheese, some paste, &c., put into the water containing them, will render the whole of them straight and stiff in the course of a few hours in hot weather. By drying and again moistening them, or by washing them constantly with pure water, they soon begin to move again, and the author has repeated this resuscitation frequently with the same individuals. So great is the influence of decomposing animal matters upon the *Anguillulæ*, that if a few of them be crushed in opening a mildewed grain, this will be sufficient to prevent the others from moving when placed in a small quantity of water.

Substances which act chemically upon the tissues, and especially acids, destroy these animals more or less quickly; sulphuric acid, diluted with 200 volumes of water, kills them in a few hours, and may be employed to destroy them in seed corn. This action, which is common to all acids, is the more singular, as other *Anguillulæ* live and breed in vinegar.

These animals also support an intense cold. The author has exposed them to a temperature of -4° F. for several hours without killing them. Heat on the contrary is fatal to them, and they perish at about 148° F., whilst the Rotifera and Tardigrada support a heat of 212° F. The author remarks, that as wheat loses its germinative power at about 148° F., it was unnecessary that these animals should be enabled to bear a higher temperature.

The adult *Anguillulæ* exhibit far less tenacity of life in all these respects. The larvæ live two months or more in water; the adults on an average a day and a half. The extreme limit was five days. The larvæ live at least two hours in sulphuric acid diluted with 200 volumes of water; the adults less than one hour. In a mixture of 3 parts of water and 1 of alcohol, the larvæ live for six hours or more, the adults only two hours. The larvæ kept for more than a month in glycerine are soon revived when put into pure water; the adults could not be resuscitated after lying in this substance for two hours. Five hours' exposure to a temperature of -4° F. does not injure the vitality of the larvæ, whilst exposure for the same period to a temperature of $+3^{\circ}$ to $+4^{\circ}$ F. always kills the adults. The larvæ may be kept dry for several years and revived by placing them in pure water; whilst the adults after a desiccation of a few hours have entirely lost their vitality.

The author has also made some experiments with the view of determining whether these singular little animals would undergo any metamorphosis if placed in conditions different from those in which they usually occur, and found that changes of habitat produced no modifications in their characters, which would approximate them to the other Nematoid worms. He placed the larvæ in vegetable mould, in vinegar and flour paste, and administered them to animals. In no case did the *Anguillulæ* acquire the appearance of the Nematoid worms which live naturally in such situations, and when administered to cold-blooded animals they were evacuated in a motionless state, but still alive.—*Comptes Rendus*, July 21, 1856, p. 148.